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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,594	12/27/2000	Terry L. Kendall	42390P10071	1642

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EXAMINER

CHACE, CHRISTIAN

ART UNIT PAPER NUMBER

2187

DATE MAILED: 01/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/752,594	Applicant(s) KENDALL ET AL.	
	Examiner Christian P. Chace	Art Unit 2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-14,17-20 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-14,17-20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This Office action has been issued in response to amendment filed 21 October 2004. Claims 1-2, 5-14, 17-20, and 22-24 are pending. Claims 3-4, 15-16, and 21 are canceled. Applicants' arguments have been carefully and respectfully considered in light of the instant amendment, but they are not persuasive with respect to the claim rejections as set forth below. It is important to note that Terminal Disclaimer was received with respect to the instant claims and US Patent #6,732,306. However, the Terminal Disclaimer for US Patent Application #09/748,825, now Patent #6,834,323, was not received in the instant case. Accordingly, claims 1-2, 5-14, 17-20, and 22-24 are rejected, and this action has been made FINAL, as necessitated by amendment.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-2, 5-14, 17-20, and 22-24 are rejected under the judicially created doctrine of double patenting over claim 1-25 of U. S. Patent No. 6,834,323 since the

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claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows:

The commonly assigned patent claims a method and apparatus for programming a memory, the method including entering a special programming mode of a memory that disables internal program verification by the memory, the memory including automation circuitry for program verification, programming a plurality of words into the memory without the memory performing internal program verification, and exiting the special programming mode of the memory, and the deletion or removal of limitations or steps such as those directed to enabling internal program verification would have been readily obvious to those of ordinary skill in the art at the time the claimed invention was made.

That is, since the commonly assigned patent anticipates the claim elements as set forth in the present claims, the present invention is seen to be obvious in light of the claims of the commonly assigned patent, anticipation being the epitome of obviousness. See particularly claims 1-2, 15-16 and 22-23, for example. Note also that the commonly assigned patent also claims subsequently enabling internal program verification, as well as having a host processor verify external to the memory the programming of the plurality of data words into the memory. The commonly assigned patent also claims disabling entry into the special program mode of the memory, as well as

using only a single programming pulse for each bit of each word of the plurality of words, and sending a data word to the memory for reprogramming.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 5-14, 17-20, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Intel Corporation Application Note A2-629 or M3-678, each taken separately, in view of Olivo et al.

With respect to claim 1, as well as claim 13, a method for programming a memory including enabling a "special" or test programming mode of a memory by entering a special programming access code in a state controller, wherein the memory includes automation circuitry for program verification, was known in the art at the time the claimed invention was made. See, for example, Intel Corporation Application Note AP-629 or AP-678, each taken separately. As one of ordinary skill in the art would readily appreciate, a plurality of words may be programmed into the memory during a

"special" or test mode, and the "special" or test programming mode exited after the tests are performed, with the programming modes of the flash memory being controlled by a write state machine in a well known manner (see, for example, page 2, line 21 to page 4, line 8 of the present specification, as well as pages 7-9 and 9-11 of Intel Corporation Application Note M7-678 and M7-629, respectively). The use of a write state machine allows the sequence of steps necessary to perform a programming operation to be easily controlled or automated. The various modes may be entered by entering a certain command or "code" in a command register which is forwarded to the write state machine. See, particularly, Figure 1 of Application Note AP-678).

Application Note AP-629 also teaches that, in order to reduce programming and testing time of a nonvolatile memory, one should consider modifying the method or program flow to perform only necessary operations (see M-629, at page 9, as well as page 10 and Figure 4). Application Note AP-629 further teaches that program verify operations initiated by external automatic test equipment (ATE) are redundant with internal program verify operations and that one can save time by not performing program verify operations (see AP-629, at page 9, column 2, e.g.).

Application Note A.P-678 similarly teaches that verification of each location as it is programmed or written should be eliminated from the programming routines of automated flash memories (see A.P-678, at page 9, column 1, e.g., as well as page 10 and Figure 3), since program verify operations initiated by external automatic test equipment (ATE) are redundant with internal program verify operations (see AP-678, at page 9, column 2, e.g.).

The Application Notes only specifically discuss saving time by not performing program verify operations with the external ATE , and do not teach disabling internal program verification operations during the "special" programming mode so that a plurality of words are programmed in the "special" or test mode without the memory performing internal program verification.

However, Olivo similarly discloses a method of programming a memory such as a flash nonvolatile memory during a "special" or test programming mode of the memory, and teaches disabling program verification operations by an internal state machine during the "special" programming mode so that a plurality of words may be programmed or tested without the memory performing internal program verification (see column 1, lines 26-62; column 2, lines 9-31; and column 4, lines and 7-12 32-36, e.g.).

Olivo teaches that overall testing speed may be improved, and that various testing values or parameters may be selected at will so that the memory test can be made fully independent of the control unit and the internal state machine (see column 5, lines 1-10, as well as column 1, lines 40-62, e.g.).

Enabling the internal program verification of the memory after exiting the special programming mode, wherein one or more words subsequently programmed into the memory are verified by the internal program verification performed by the memory is disclosed by Olivo in column 4, line 63 into column 5, line 10, as "after programming."

Accordingly, it would have been readily obvious to one of ordinary skill in the art at the time the claimed invention was made to disable program verification operations by an internal state machine during a "special" programming mode, as taught by Olivo

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et al, in the flash memory apparatus and method of Intel Corporation Application Note M-629 or M-678, each taken separately, so that a plurality of words may be programmed without the memory performing internal program verification, because the Intel Corporation Application Note M7-629 or AP- 678, each taken separately, teaches that program verify operations initiated by external automatic test equipment (ATE) are redundant with internal program verify operations and that one should consider modifying the method or program flow to perform only necessary operations, and Olivo teaches that an improved testing speed and greater flexibility in the testing process may be obtained by disabling or not performing internal program verification operations. The improvement in testing speed and ability to change the testing process independent of the control unit and internal state machine as taught by Olivo et al provide ample motivation and suggestion to disable internal program verification operations in a memory such as in the Intel Corporation Application Note A2-629 or M-678, each taken separately, so as to avoid redundant program verify operations while providing an improved test speed and increased flexibility in the testing process.

With respect to claims 2 and 14, one of ordinary skill in the art would readily appreciate that the automated test equipment in the Intel Corporation Application Note A2-629 or AP-678, each taken separately, may include processor and that the memory may be tested by resending a plurality of words previously sent into the memory.

With respect to claims 5-6 and 8, as well as claims 17-18 and 20, internal program verification by the memory may be enabled after the memory is tested so that the user can be assured that data is being properly programmed and is reliable. The

programming and testing of nonvolatile memories is an iterative process so that if one of the plurality of words does not verify, the programming and verification are repeated (see page 2, lines 15-20 of the present specification, e.g.). If all of the plurality of words verify, the programming mode may be exited.

As per claims 7 and 19, one of ordinary skill in the art would recognize that the "special" programming mode may be permanently disabled after being tested at the factory so that a user is not able to enter the "special" programming mode.

With respect to claim 9, one of ordinary skill in the art would recognize that the number of iterations in the programming or testing sequence may obviously be varied. The ability to simply change the testing procedure is a key aspect of the teachings of Olivo et al, and the selection of a single iteration or a single programming pulse in order to quickly test the memory would have been readily obvious to one of ordinary skill in the art at the time the claimed invention was made.

With respect to claims 10-12 and 22-24, the Intel Corporation Application Note AP-629 or M3-678, each taken separately, teaches that programming the plurality of words into the memory may continue until a programming ending condition is met (see page 4, line 14 to page 5, line 3 of the present specification, e.g.). As one of ordinary skill in the art would readily appreciate, the programming ending condition may be that a pre-selected time has elapsed (a "timeout" condition has occurred) or an ending address (the last address in the memory has been reached and the entire memory has been tested).

Response to Arguments

With respect to applicants' arguments for objections and rejections not repeated herein, they are moot in light of the corrections submitted instantly which overcame same.

Examiner notes herein that all applicable responses to previously offered arguments from the previous Office action are herein included, but not repeated, for the sake of efficiency.

With respect to applicants' argument that terminal disclaimers have been submitted to overcome the double-patenting rejections, examiner has addressed this issue supra. It is noted that applicants were only charged for the one terminal disclaimer received and scanned and entered.

With respect to applicants' argument that the disclosures of the Intel references, taken separately, teach away from the amended claim 1, examiner respectfully disagrees. AP-629, for example, states that using both internal and external verification is redundant. One of ordinary skill in the art would clearly recognize that eliminating one or the other of the redundant procedures would save time and power. AP-629, for example, merely offers to eliminate the ATE. This is why examiner included the Olivo reference in the rejection.

With respect to applicants' argument that the test circuitry of Olivo disables the state machine, instead of the program verification of the memory, ("during the testing" is not commensurate with the claim language) examiner respectfully disagrees. AP-629, for example, discloses the state machine verifying data written to the memory as the

internal verifying procedure. In light of this knowledge, one of ordinary skill in the art would clearly recognize that the state machine of Olivo performs the same function as that of the Intel references. Therefore, the state machine of Olivo is, indeed, related to program verification.

With respect to applicants' argument that Olivo fails to teach or suggest disabling internal program verification, examiner respectfully disagrees, and notes that the quotation of Olivo at page 13 of the instant remarks actually reinforces the rejection of the instantly amended claims – the verification is performed AFTYER programming (because the internal state machine is disabled). As to the rest of the quote, whether something “can” be done or not does not, in fact, prove that it is done. Specifically, the fact that a test CAN BE performed[externally] does not, in fact, mean that it is – because, as we know, it CAN also be performed internally.

With respect to applicants' argument that there is no suggestion to combine the references, previous examiner has addressed this argument in the previous Office action.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned **only** from the applicant's disclosure, such a

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian P. Chace whose telephone number is 571.272.4190. The examiner can normally be reached on MAXI FLEX.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 571.272.4201. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'C. P. Chace', with a long horizontal flourish extending to the right.

Christian P. Chace
Examiner
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